Chapter 3
Through Forks to Fields: Backcasting Workshops in Japan for Designing Sustainable Local Food Systems

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Abstract This chapter introduces case studies of the backcasting workshop for designing sustainable local food systems in Japan and describes each stage of the co-design process for participants referring to the theoretical frameworks raised by Paul B. Thompson. Backcasting is a method used by participants to envision a sustainable society, support decision making, and promote action. However, there has not been sufficient analysis of case studies on balancing the enthusiasm to actively intervene in society with the prudence that the activity may have unanticipated adverse consequences. Therefore, this chapter analyzes which processes of backcasting triggered participants to focus on the "wicked problem" nature of the issue of sustainable food systems. With feedback from participants of backcasting workshops, we can find four opportunities in this workshop process to encourage our active intervention in local food systems and to make us aware of our potential imperfections:

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(1) different picture of the ideal food scenario by people living in the same community, (2) common requisites that will become a foothold for collaboration, (3) needs for specific knowledge and information for intervention situations, and (4) various factors surrounding the ideal food scenario. Participants' comments suggested that the structured approach of backcasting not only identifies points of intervention in reality but also provides an opportunity to be aware of the tragedy and irony inherent in the story, which is caused by potential human imperfections.

3.1 Moderation Between Enthusiasm and Prudence

In the coming decades, one of the global challenges will be to feed the world in sustainable ways (McGreevy et al. 2022a). This challenge is difficult enough in itself but is made more acute by the anthropogenic climate crisis (Wolski et al. 2020), biodiversity loss (Dudley and Alexander 2017), excessive globalization, and financialization of agricultural markets (Clapp 2014), the COVID-19 pandemic (Laborde et al. 2020), and conflicts (Hendrix and Brinkman 2013), especially Russia-Ukraine war (Osendarp et al. 2022).

When considering the sustainability of food systems, the insights from Paul B. Thompson about the ethics of resource sufficiency and the ethics of functional integrity are thought-provoking. Thompson (2016) notes two different paradigms are in conflict in the sustainability debate; the Brundtland paradigm and the resilience paradigm. The Brundtland paradigm follows the definition of sustainable development formulated by the World Commission on Environment and Development (WCED). In 1987, the United Nations Brundtland Commission defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." In this paradigm, sustainability is interpreted as the availability of resources needed to produce critical goods and aims to quantify and maintain stocks and flows of economic activity, biodiversity, etc. Thompson describes this Brundtland paradigm as an understanding of sustainability regarding resource sufficiency. On the other hand, the resilience paradigm sees sustainability as a requirement that the feedback system that establishes such a stock and flow relationship has the robustness and resilience to resist internal and external disrupting factors. For example, a hospital equipped with a gasoline-powered generator can provide medical care even if the power grid goes down. In this case, the hospital is more sustainable as a system. Thompson notes that the resilience paradigm, which focuses on resistance to internal and external threats that could bring down the system itself, is a view that understands sustainability in terms of functional integrity.

What is needed, Thompson argues, is for the Brundtland paradigm (resource sufficiency) and the resilience paradigm (functional integrity) to be in dialogue with each other. This is because the Brundtland paradigm emphasizes distributive justice of resources and goods, while the resilience paradigm does not necessarily do so. But on the other hand, maintaining the integrity of the system that generates the stocks and flows of those resources and goods is essential: "Those who have labored

under the overly narrow construal implied by the Brundtland paradigm's focus on scarcity and growth may have failed to take the truly systemic perspective of the resilience paradigm. But the resilience paradigm may itself be entirely too capable of overlooking the vulnerabilities of individual human beings, and failing to correct systems that have failed too many for far too long. We need both paradigms. We need pluralism. And we need a sophisticated pragmatism that acknowledges the generative power of placing competing perspectives into genuine dialog with one another" (Thompson 2016, p. 26).

Considering these perspectives on sustainability leads to the next important suggestion that we should think about societies that are not simply sustainable but deserve to be sustained:

Perhaps the best ethical argument for local food systems—buying from farmers at farmers markets, eating in season, and joining a community-supported agriculture or local food co-op—is not so much that the food choices we make have ethically better outcomes. Perhaps the reason to advocate for sustainable agriculture is to encourage people on a journey that helps them realize their place in the world, that brings them to an awareness of the systemic reverberations of their eating practices and to question whether there might be ways to more frequently remind themselves of the vulnerability, contingency, and uncertainty of the systems—social and ecological—on which our ways of life have been built. I do not go beyond saying "perhaps" here. To think about sustainability in terms of functional integrity is not to ask whether we are leaving our children "enough." It is to ask whether the kind of environment that made us who or what we are today can and should endure. It is to ask whether the sociocultural environment that produced us is the one that we really want our children and grandchildren to have. Such an inquiry questions whether our social world—and especially our food world—is truly the kind of environment that we would want to shape the character and habits of our children. That may be the hardest kind of question an environmental philosopher can ask (Thompson 2015, p. 192).

A similar question is asked in The Spirit of the Soil (Thompson 2017): What if a society is perfectly ecologically sustainable but founded on harsh slavery, or a green sludge biosoup replaced everyday meals? These questions lead us to intuit that the concept of food systems sustainability is inseparable from social justice and well-being (Hinrichs 2010; SAPEA 2020). In the same way, the attributes of diversity, modularity, transparency, innovation, and congruence are critical to the food system's sustainability (Eakin et al. 2017). It is also proposed that the agri-food system follows the principles of sufficiency, regeneration, distribution, commons, and care, to avoid climate-induced social and ecological disasters, overcome the growth paradigm, and redesign the interaction between humanity and nature in the twenty-first century (McGreevy et al. 2022a).

To rebuild the post-pandemic food system, Kaiser et al. (2021) emphasize the fundamental importance of a deliberative framework that recognizes the multiple values among food actors and promotes open, respectful, and structured dialogue. Imagining, discussing, and working on food utopias with people will include themes of autonomy, sufficiency, cooperation, mutual aid, freedom, and responsibility (Stock et al. 2015). This idea suggests the significance of envisioning a sustainable and

regenerative society through sustainable and regenerative food systems (Duncan et al. 2021) when we are in difficult circumstances.

However, we should remember that when we work toward creating a sustainable food system, one that deserves to be maintained, there will always be unexpected challenges. This engages with "wicked problems" in the local food system (Norton 2005; Brown et al. 2010; Thompson and Whyte 2012; Brinkley 2013; Nelson and Stroink 2014; Kuhmonen 2018). For example, Lake et al. (2015) have found that food innovation districts, conceived as vibrant public spaces for local food, entrepreneurs, community health, and employment, may function as gentrification for low-income residents. This initiative addressed local problems caused by dominant food systems and practices. However, the various characteristics of wicked problems—e.g., extreme complexity, interconnected set of problems, high levels of uncertainty, and variability—created unexpected side effects. Paul Thompson, in "The Spirit of the Soil", describes this uncertainty as follows:

> The irony comes from reflexivity. [...] We would like to live in a sustainable society, but our attempt simultaneously to understand whether our society is sustainable and to act upon that knowledge violates the condition on which knowledge of sustainability could be obtained, for our use of that knowledge requires us to abandon the perspective from which knowledge of sustainability can be constructed.
>
> The tragedy comes from incompleteness. Actions pursued as a result of what we know about the unsustainability of our practices cannot be guaranteed to succeed (a fact which in itself entails no tragedy) and can lead us into new patterns of self-defeating beliefs and norms. It is one thing to fail because the obstacles are too great, but it is tragic to fail because ones own actions are the source of ones undoing. Our society may collapse because of shortsighted stupidity on the part of progrowth, resource exploiting power elites, but the collapse will only be tragic if shortsightedness or ignorance on the part of environmentally and ethically concerned people helps bring it about. [...]
>
> The irony and tragedy of our situation make the stipulation of practical plans of action highly uncertain, at best. Yet, it hardly seems moral or prudent to trust blindly in luck. We follow our bliss, in any case, but we do so in wisdom when we acknowledge the irony and tragedy inherent in our story, and when reflection upon these tropes is a perennial theme of our activity. (Thompson 2017, pp. 185–186)

This text makes us sober. The saying goes, 'The road to hell is paved with good intentions,' and the countless episodes of harmful consequences from good intentions have been known since the Greek tragedies. In the 1930s, American inventor Thomas Misery invented leaded petrol and Freon gas (Ajmal 2018). Of course, he was not trying to pollute the atmosphere and create an ozone hole but make people's lives better. Krznaric (2020) makes a case for the need for us to be good ancestors for future generations and how to do this. The authors agree with this opinion. However, we should remember that our good intentions do not always lead to good outcomes. In particular, looking at how local food systems can support a desirable future society, our starting point is to be aware of the interaction between food and society. This is where unexpected spillover effects arise. For example, as described in *From Field to Fork*, what we do to solve livestock and hunger causes new problems. However, doing nothing may make the situation worse. How do we cultivate the virtue of

moderation between enthusiasm for achieving a desirable future and prudence that good intentions may not always lead to a good outcome?

3.2 Backcasting Workshop in Noshiro and Kyoto

From 2016 to 2019, the FEAST project of the Research Institute for Humanity and Nature in Japan held several backcasting workshops on local food policy in Japan and Thailand. Backcasting is a scenario analysis method that looks back from future goals to the present. Then, recognizing that future events are fundamentally uncertain, a desired future scenario is developed, and a plan to reach the vision is discussed.

Since the 1990s, backcasting to achieve long-term sustainability goals has required the participation of a wide range of stakeholders. Through discussion, stakeholders can take a vision of the future as a starting point and come up with means of solving problems in a way that is, to some extent, free from path dependency (Carlsson-Kanyama 2008). Path dependence is a phenomenon in which institutions and mechanisms are locked in to their past and history, and path dependence needs to be unlocked in order to address issues of sustainability transformation and related structural change (Loorbach et al. 2017). A method that focuses on changing practices by identifying social practices and how they are structured in everyday life in the future is called practice-oriented participatory backcasting (Davies and Doyle 2013, 2015).

The case presented here is a case study of backcasting for designing sustainable local food systems in Japan. Four workshops were organized by the FEAST project of the Research Institute for Humanity and Nature in Japan. The workshops were held in Noshiro, Akita Prefecture, in 2016 and 2017, and Kyoto, Kyoto Prefecture, in 2017 and 2018. Both were designed as backcasting on the theme of thinking about the future of local food and agriculture and involved stakeholders in the local food system, including students, and involved visioning of the desired future food practice of 'One community's ideal dining table of 30-year future,' followed by planning (see Fig. 3.1). The authors participated as experts in sustainable food systems and designed and managed the workshops to be cross-sectoral and bottom-up.

Noshiro, a city in Akita Prefecture, has a rich cultural heritage and strong ties to traditional Japanese customs. However, it faces several social challenges, such as depopulation, economic stagnation, and limited opportunities for young people. Noshiro is known for its location near the Shirakami mountain range, a UNESCO World Heritage Site known for its scenic beauty. Noshiro is known as the "City of Wood" in Akita Prefecture due to its attractive wood industry. Noshiro City is also the venue for the lively Noshiro Tanabata Festival. Despite these, the local economy has experienced a decline in recent years due to urban migration, resulting in an aging population and a shrinking workforce.

Kyoto, one of the cultural capitals of Japan, is a bustling, historic city that despite its numerous achievements faces its own set of social problems. The booming tourism has led to overcrowding, the overcommercialization of cultural sites, and residents experiencing economic disparities and limited access to affordable housing.

Fig. 3.1 "One community's ideal dining table of 30 years future" WS

Although there are many alternative food network initiatives, the creation of an integrated food policy is still being explored.

Both backcasting workshops on the ideal dining table in a 30-year future community were organized as a process of co-production of knowledge. The research questions consisted of three subquestions.

1. Changes in participants before and after backcasting: Questionnaires and interviews were conducted after the workshop to focus on changes in participants.
2. Contextual comparison: The area in which the workshop took place, and the sociodemographics of the participants were compared with a focus on the vision portrayed to identify the characteristics found.
3. How social practices realize the vision is depicted: Focusing on people, organizations, and hardware (Davies et al. 2012), we analyzed the way elements of social practice were depicted in the workshops.

The workshop process consisted of six steps and took a couple of days (in case study #1 in Noshiro, participants had one month to draw an image of an ideal meal). Six steps were as follows: (1) Participants received a sketchbook and sticky notes, and each drew an illustration of the ideal dining table in a 30-year future community. (2) Participants were divided into groups of 4 or 5 and asked to describe their illustrations to the other participants in the group. (3) Through group discussion, a new image of an ideal dining table for a community was created (it does not have to be the total sum of the total number of participants in the group). (4) Explain how the ideal dining table in a 30-year future community relates to the environmental and social problems that the community wants to contribute to solving or that need to be solved in order to realize the ideal meal. (5) Consider what actions are needed to solve the environmental and social problems and what social actors should be involved; (6) Devise a scenario that will realize the ideal dining table in a 30-year future community.

Before we began the workshop, we told participants that the "ideal food system" need not be an evidence-based inference. Following a scientific style of thinking, for example, we would test the validity of a claim about the impact of climate change on the food system by examining whether the reasoning is based on rigorous arguments and confirmatory evidence (standardized, controlled experiments, models derived from historical observations, statistical proof). This rigor is critical in evidence-based policymaking (EBPM). In backcasting workshops, however, it is not about deriving a single plan but about participants discovering points of intervention in society through discussion (McGreevy et al. 2022b). Along the way, it was also expected that participants would become aware of the "wicked problem" (Rittel 1971) aspect of the sustainable food system issue. Wicked problems were introduced to draw attention to the complexity of the social issues that public policy targets. Compared to "tamed" problems, where the solution, through difficult, is obvious and achievable, "wicked problems" lack clarity in both their purpose and their solution. In other words, "for design problems there is no criterion which would determine whether a solution is correct or false. These are meaningless labels which cannot be applied to solutions of design problems. Plans are judged as good, bad, reasonable, but never correct or false. And a plan that looks good to Mr. A may be most objectionable to Mr. B" (Rittel 1971, p. 19). For example, when person A evaluates the genetic modification of crops, and person B is concerned about their health and ecological risks, it is not a question of which evaluation is correct but rather a reflection on which aspect of the solution they value differently, and what rationale or mode of thinking they are basing their evaluation on when they do so. Participants were asked to reflect on what rationale or thinking style they were basing their evaluations on at the time.

3.2.1 Case Study 1: Citizens, Noshiro

The first workshop was held in Noshiro, Akita Prefecture, a town that once prospered from forestry but now suffers from a declining birthrate and an aging population. Twelve people participated in the workshop, including the head of a tourist facility, a restaurant owner, a nutritionist, a cooperative agricultural official, a farmer, and the manager of a local supermarket. The average age of the participants was in the 50 s.

Three workshops were held: The first was a forecasting session to discuss the 'future of society and the food system in the Noshiro area,' and the second and third were backcasting sessions to discuss the same issues. While the issues were exclusively discussed in the forecasting sessions, the solutions were discussed in the backcasting sessions (see Fig. 3.1).

(1) Changes in participants before and after backcasting: Before the workshop, participants expressed difficulties developing a desirable vision. However, they overcame this challenge by developing a 'vision of the ideal dining table in a 30-year future community and the society in which it would exist.'

(2) Comparison of contexts: The average age of the participants was in the 50 s, and all participants developed a vision of eating a Japanese diet that included fish, wild vegetables, rice, and miso soup. These are the foods they eat now, and there was a strong desire to "eat the same food 30 years ago."
(3) How action plans/interactions were drawn up to realize the vision: They primarily emphasized organizations' and individuals' efforts. For example, their keen desire to sustain locally sourced food, such as fish from a nearby port, even 30 years into the future, they point necessitated forging agreements with neighboring provinces and countries to preserve fishery resources. Similarly, to sustain the practice of consuming handpicked wild vegetables for 30 years, they recognized the need to engage in activities like mountain visits with their children.

3.2.2 Case Study 2: High School Students, Noshiro

Following the case study case report, two high school students in Noshiro contacted us to express their interest in the sustainability transition of the local food system. We were delighted to collaborate with their high school and offer a series of eight classes, including fieldwork, for some 30 applicants. The average age of the participants was in the 10s. Before and after these seminars, we conducted two backcasting sessions (see Fig. 3.1).

(1) Changes in participants before and after backcasting: Participants were divided into two groups: those whose opinions changed little and those whose opinions changed significantly between the first and second backcasting, which took place one year later. When students whose drawings changed were asked why, it was clear that the change was due to social knowledge gained through school studies. 'I have learned things about society in the last year that I knew very little about,' he said.
(2) Contextual comparison: The average age of the participants was in the 10s, and none of the participants drew a fish. This is a significant difference compared to the case study (1). However, they all shared a strong desire to eat the same food 30 years from now as they do now.
(3) How action plans/interactions were depicted to realize the vision: The first case study of the thesis concentrated mainly on individuals, whereas the second one emphasized communal facilities. For example, a concept was pushed to establish a multifunctional facility, incorporating a production distribution center, a communal canteen, and a library. This facility was also designed to accommodate people from outside the region. This proposal was formally presented to the mayor of Noshiro.

3.2.3 Case Study 3: Citizens, Kyoto

The second case study took place with 12 citizens, including NPO staff, Kyoto City officials, university students, private accommodation managers, restaurant owners, and farmers interested in creating a Food Policy Council in Kyoto. In this case study, we did not draw an ideal dining table in a 30-year future community but presented three images of the future that stimulated the participants' imagination and asked them to backcast from them (see Fig. 3.1).

(1) Changes in participants before and after backcasting: Prior to the workshop, participants expressed difficulty in developing a desirable vision. This is similar to the first workshop conducted in Noshiro. However, due to the exchange of views, they shared that the bottleneck was long working hours, which they had not realized before backcasting. One participant said, "At first, I was resistant to it because it seemed like a game, but once I tried it, it was very thought-provoking."
(2) Comparison of contexts: Although they were almost the same age group when compared to case study 1, Noshiro's interest was concentrated on production, while Kyoto's interest was concentrated on distribution and policy. This is probably not unrelated to the fact that Kyoto is a city.
(3) How action plans/interactions were depicted to realize the vision: They emphasized the role of networks for logistics and information exchange between individual and organizational efforts. An example was the proposal to set up a network to efficiently produce organic vegetables intended for use in schools and hospitals. While there was an expressed need for collaboration between the government and non-profit organizations, there was not enough time in the workshop to propose specific strategies.

3.2.4 Case Study 4: University Students, Kyoto

In the last case study, university students studying agriculture at Kyoto University were asked to draw the ideal dining table in a 30-year future community. Instead, many of them drew a scenario where a more prosperous and more sustainable dining table would be achieved through technological development (see Fig. 3.1).

(1) Changes in participants before and after backcasting: Participants said they had learned about the perspective of the interaction between technology, society, and ecological conditions through lectures. However, they realized after backcasting that it was not linked to their imagination.
(2) Comparison of contexts: Participants were learning about the specific problems facing food security and food systems.
(3) How action plans/interactions were depicted to realize the vision: They emphasized technological advancements, such as high-tech intensive agriculture intended for hyperlocal urban farming. However, they did not discuss potential societal issues these emerging technologies might instigate. (This isn't an

Table 3.1 Backcasting workshop in Noshiro and Kyoto

	Changes in participants before and after backcasting	Contextual comparison	Action plans/interventions
Case Study 1: Citizens, Noshiro	Citizens found developing and discussing their visions for the future difficult, but they gradually overcame it by drawing a dining table workshop.	They drew on Japanese food. A strong desire to "eat the same food 30 years from now as we do today."	They focused on individual and organizational efforts to maintain local food sources for the next 30 years and pointed to requiring cooperative agreements and family activities.
Case Study 2: High School Students, Noshiro	Students' opinions and visions changed as they gained social knowledge in the classroom.	Compared to Case 1, the menu is different. However, the strong desire to eat the same food 30 years later than now is the same as in Case 1	Case 1 focused on individuals and organizations, while Case 2 proposed a multifunctional facility in Noshiro, accommodating a distribution center, canteen, library, and visitors from outside the region.
Case Study 3: Citizens, Kyoto	Citizens found it difficult to develop a vision for the future, but gradually overcame.	Despite being of a similar age group as in Case 1, Noshiro's focus was on production, whereas Kyoto's was on distribution and policy.	Their focus was on creating networks for logistics and information exchange to efficiently produce organic vegetables for schools and hospitals. The need for government and non-profit collaboration was identified.
Case Study 4: University Students, Kyoto	Students had difficulty imagining the interplay between technology, society, and ecology.	They were learning about food security and food system problems.	They emphasized tech advancements like high-tech intensive agriculture for urban farming but with an insufficient discussion on potential societal challenges.

argument against technology, but rather an examination of the cause-and-effect relationship, similar to how the widespread use of cars leads to traffic congestion in a society.) (Table 3.1).

3.3 Four Opportunities of Encouraging Active Intervention and to Make Aware of Own Potential Imperfections

Feedback from those who participated in the backcasting workshop on the ideal dining table in a 30-year future community, we can find four opportunities in this workshop process to encourage our active intervention to local food systems and to make us aware of our potential imperfections. These feedbacks provide suggestions

for the questions in this chapter: How can we develop the virtue of moderation between enthusiasm for a desirable future and prudence that does not always lead to a good outcome?

3.3.1 Different Picture of the Ideal Food Scenario by People Living in the Same Community

The first opportunity came from the process itself, in which participants had to draft an ideal dining table that could be treated as a goal for a particular region. It was clear from all of the case studies that the work itself stimulated people's activism, as most participants do not have much opportunity to think about what the community would like to see in 30 years. The ideal dining table envisioned and proposed by each participant is, in most cases, diverse. In some cases, as in Case 1, they converge on a single pattern (Japanese cuisine including fish from nearby waters and rice prepared by an acquaintance), but which elements are valued more strongly (the producer of the food, the place where it is collected, the process of preparation, the people with whom it is eaten) varies from person to person. Through differing images of the ideal dining experience, we can realize that we live in different worlds in the same region (see Fig. 3.2). A participant in Case 3 said, "Disagreement in collaboration comes from this difference in vision. The gap manifests itself in a way that cannot be ignored when we do not want it to happen the most. So it is significant to know before starting a collaboration." Also, the characteristics of participant's values become more apparent when we connect several "ideal dining tables" to create a new unit. For example, in Case 4, the techno-optimism narrative was strengthened by the high expectations for advanced food tech, while the narrative of concern about the risks of food tech was weakened. Also, different kinds of values can be spliced together like a patchwork under one food product.

3.3.2 Common Requisites that Will Become a Foothold for Collaboration

The second opportunity lies in finding some of the intervention points necessary to achieve the ideal food tastes that the community aspires to. Backcasting makes finding the requirements for realizing the goal easier by going back up the chain of means and ends. In this phase, the key is not only to consider requirements for realizing one's own vision but also to consider requirements for realizing the vision of others. For example, a participant in Case 1 reflected, "Thinking about other people's problems will train me to discuss my own problems with others and receive their support."

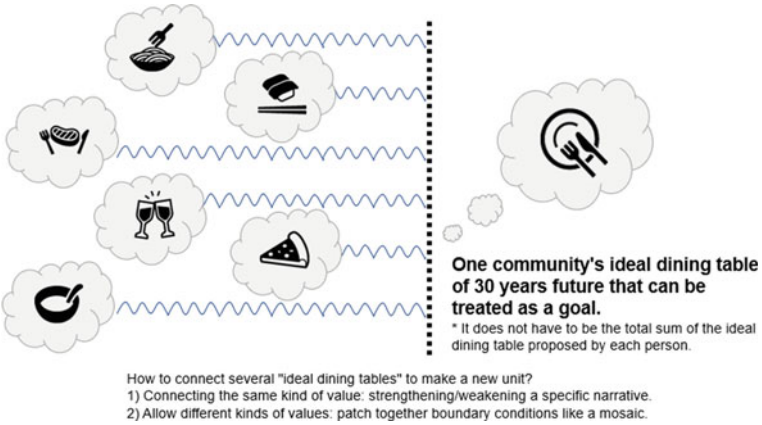

Fig. 3.2 Through differing images of the ideal dining experience, we can realize that we live in different worlds even though we are in the same local context

The requirements provide a scaffold for transdisciplinary collaboration, and discoveries may be unexpected (see Fig. 3.3). For example, in Case 3, the urgent need to improve life-work balance and to have more time to commit to the community was identified, but initially, none of the participants thought it was a requirement. Nor is it sufficient to speak of "elements that meet everyone's requirements" in isolation. Due to the interaction between the elements, it may not be possible to satisfy both simultaneously. For example, in Case 3, the participants listed several intervention points. However, it was understood that they needed to be prioritized because no amount of time that could be committed to the community would be sufficient to try to do them all.

3.3.3 Needs for Specific Knowledge and Information for Intervention Situations

The third opportunity lies in envisioning the ideal dining table in a 30-year future community scenario. Things are identified that can be intervened or controlled, directly or indirectly, to achieve the ideal dining scenario. This provides clues for participants to develop a plan for social action. On the other hand, specific knowledge and information are needed to intervene and control the situation (see Fig. 3.4). In Case 3, it became clear that the participants did not have sufficient knowledge of the approach to work with Kyoto City (an external lecturer specializing in public policy studies later introduced Kingston's "policy window" model).

Also, peripheral and indirect knowledge and information are needed to intervene and control the situation. A point common to the fourth opportunity is the importance of thinking and dialogue while investigating. While the focus is on thought and

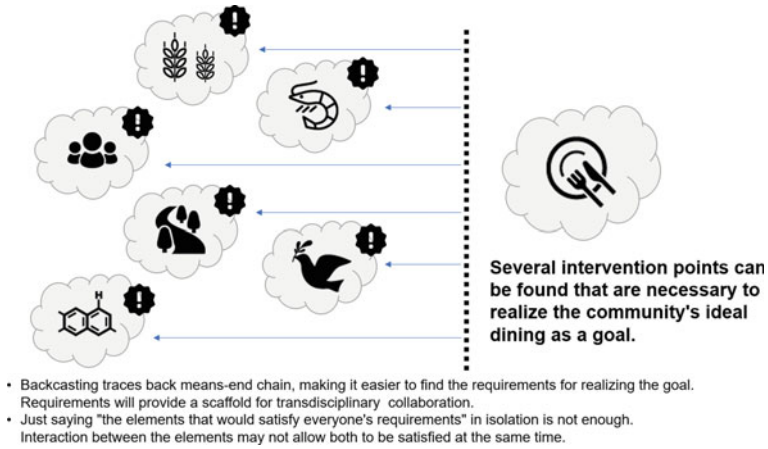

Fig. 3.3 Requirements provide a scaffold for transdisciplinary collaboration, and found may be unexpected

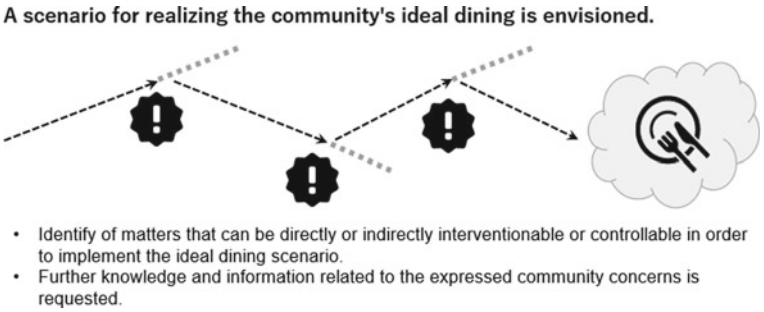

Fig. 3.4 Specific knowledge and information are needed to intervene and control the situation

interacting, there will be a reflection on what to research, when, and how. Researchers and professionals also need to consider how they can support this. For example, the student in Case 4 said, "When I ask about something I don't understand, many teachers tell me to read some book or paper by someone, but I don't think that's always appropriate support." The high school students who participated in Case 2 supplemented this by questionnaire and interviewing relevant stakeholders during the fieldwork.

3.3.4 Various Factors Surrounding the Ideal Food Scenario

The fourth opportunity came after the scenarios and plans had been created in the workshop. It is not enough to create both the scenario and the plan for the intervention.

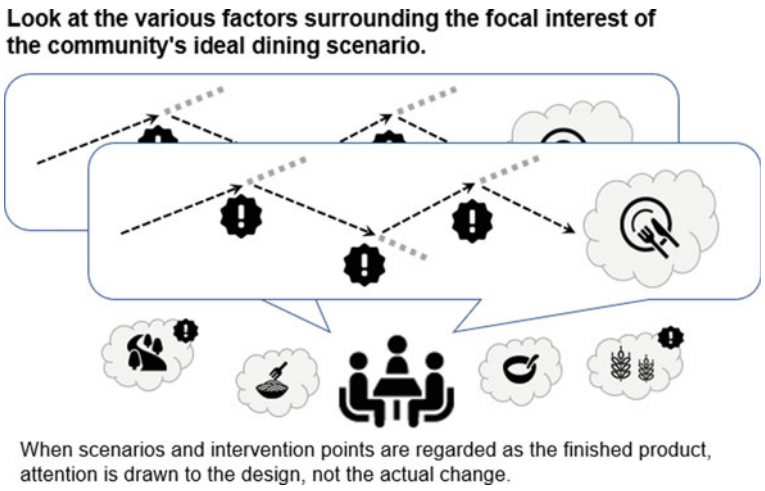

Fig. 3.5 Look at the various factors surrounding the focal interest of the community's ideal food scenario

Just making a blueprint is not enough to build a house. The high school students in Case 2 attempted to make their intervention plan a reality by putting it together and presenting it directly to the mayor of Noshiro. At the same time, it is important to look at the various factors surrounding the focal interest of the community's ideal food scenario (see Fig. 3.5). In Case 4, the university students thought of food tech as an independent event. However, by looking at the interplay between technology, society, and ecosystems, we can develop our imagination about the "tragedies" they might cause (remember the leaded gasoline and Freon cases).

3.3.5 Remaining Challenges

There are also challenges and unresolved issues regarding backcasting the ideal dining table in a 30-year future community. There are also challenges and unresolved issues regarding backcasting the ideal dining table in a 30-year future community. The challenges under discussion are inherent to many transdisciplinary processes, as outlined by Scholz and Steiner (Scholz & Steiner, 2015a, b, c, 2023). It is essential to contemplate the implications of these workshops within the framework of transdisciplinary processes.

1. Workshops may touch on the uncomfortable knowledge (Rayner 2012). As a result, intense conflicts and psychological resistance may occur. In another workshop not presented in this paper, some participants did not participate in the discussion and left the scenario production altogether. Face-to-face interaction brings order, discovery, and danger. This danger should be stressed enough. In a

discussion, it is far more important how much the participants can talk comfortably than how much knowledge they have. By conducting this workshop as a playful sandbox, this conflict may be mitigated.
2. The scenarios created should be reflected in actual food policies. How to open the policy window is the challenge. Key stakeholders with decision-making power on local food system should be involved in this workshop, but this runs counter to the workshop as a "playful sandbox" mentioned earlier.
3. The organizer should think about the degree of anonymity of the participants in the workshop. While anonymity may allow people to talk freely them from social attributes, the workshop introduced here aimed to stop separating and opposing reality and ideals and to enable each person to freely use their imagination under the social qualities that they possess and to help each of them discover intervention points that will change society. For example, if participants found that the person sitting next to them was an economics professor, they might be hesitant to express their opinions about the economy to that person freely. More important, however, is to think about what and how they would talk about the economy with the economist sitting next to them and try it out for themselves. Workshops should be designed not as a place where participants can come up with a definitive answer but as a place where participants can go back to where they made a mistake without fear if people realize they have made a mistake.

Backcasting provides a systematic opportunity to identify points of intervention into reality, to increase the activism of those involved in the local food system, and to make them aware of potential imperfections (and the tragedy and irony inherent in our story that this brings). It is a way to make people aware of the potential imperfections of the food system. However, this approach should not be viewed as a fixed procedure. Instead, it should be updated by those who use this approach, adding steps as needed and considering alternative methods.

3.4 Support Democratization of the Food System Through Backcasting

Finally, we connect the findings from the backcasting case studies and the philosophical perspectives of Paul Thompson. Thompson mentions ways to support democratization of the food system in his various works, but here in particular, note the following reference to the "virtue-risk feedback loop" in *From Field to Fork*:

> For many critics who advance aretaic criticisms, the weak moral character of the pro-biotech camp provides a reason to be especially cautious in dealing with them. If those who develop and promote GMOs are not to be trusted because they have poor moral character, then it is rational to be wary of these products, to see them as risky. A mutually reinforcing feedback loop begins to develop: lack of attention to key ethical issues is seen as evidence of poor moral character, and poor moral character is seen as evidence for risk (see Fig. 3.2). This evidence does not derive from facts about GMOs or their fate in the environment or the human body, but from facts about the danger that we associate with people who fail to treat

> others with respect, or who displace serious moral issues with strategic or manipulative argumentation. As this loop becomes established, the precautionary principle can now be applied to the "uncertain risks" associated with GMOs in virtue of their shady associations. Such risks do not become better known by producing a conventional risk assessment. [...] I have long argued that this feedback loop lies at the heart of much public resistance to GMOs, and that it explains the unpredictability, self-righteousness, and explosiveness of opponents' behavior. [...] It would be presumptuous to suggest that every critique mounted against crop biotechnology can be fitted into one of these categories, but they do encompass a large swath of the territory. (Thompson 2015, pp. 213–4)

The "virtues" that trigger the virtue-risk feedback loop are pretty different from the virtues explored in this paper. The former virtue is a norm that keeps us from walking down the wrong path, while the latter virtue (moderation between enthusiasm for achieving a desirable future and prudence that good intentions may not always lead to a good outcome) does not deny fallibilism. It is, of course, important to be careful not to make mistakes. However, it is even more important to think in a way that allows for mistakes and to be able to go back and restart where we left off when we realize a mistake has been made, as we are forced to deal with the wickedness of local food system problems amid high uncertainty. The principle of democratizing technology is worth respecting: Regulations should be democratized, reflect the values of the broader public, and not be controlled solely by individuals or organizations interested in the sale of the product. It may be a virtue of moderation between enthusiasm and prudence. However, it is different if this prudence is rooted in afraid. Fear makes us turn away from "the irony and tragedy inherent in our story," (Thompson 2017, p. 186) and look toward the possibility of "sustain" into the future as a mere extension of the status quo. Then it is not possible to unlocking the path dependencies.

> Activists hoping to constrain corporate exploitation and control of gene technologies or simply trying to expand democratic control over innovation for philosophical reasons have good reason to link their arguments to food safety because fear is a proven motivator for political change. In my case, however, that would also be deeply insincere. (Thompson 2020, p. xvii)

The four case studies in the "One community's ideal dining table of 30 years future" backcasting workshop outlined in this chapter are not meant to confront the wickedness of our food system and to embrace our own ignorance (unknown knowns, or our potential "irony and tragedy") in a way that is not fueled by afraid. The group process of integrating each other's "ideal dining table" was not worked to impose a unified "dining table" as a philosophy or norm but rather to allow seemingly similar disagreements and unknowingly occurring miscommunication among the participants to be tolerated in the arena of a kind of serious playing (McGreevy et al., 2022b; Vervoort et al., 2022; Ota et al., 2021). When designing the workshop and research question, the authors thought that the process of integrating the illustrations of the "ideal dining table" and developing a plan for their realization would provide participants with a moral source and practical perspective for active intervention in local food systems for the future (i.e., initially, the authors focused on the aspects of the workshop that would cultivate participants' enthusiasm and proactivity). However, the results of the post-workshop interviews indicate that the

participants gained a richer experience than the authors had envisioned (i.e., they were made aware of each other's potential imperfections without strong uncomfortable). Integrating the illustrations of the "ideal dining table" and developing planning is done to examine and accept the limitation that we, who share more or less only a partial form of living, must still establish to live together.

Paul Thompson's work will continue to be an endless source of wisdom in analyzing and describing the collaborative reasoning through this backcasting approach, which is neither persuasion nor incitement, of the democratization of the local food system. Furthermore, this analysis should also reveal the shortcomings that backcasting, like any other approach, must have.

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